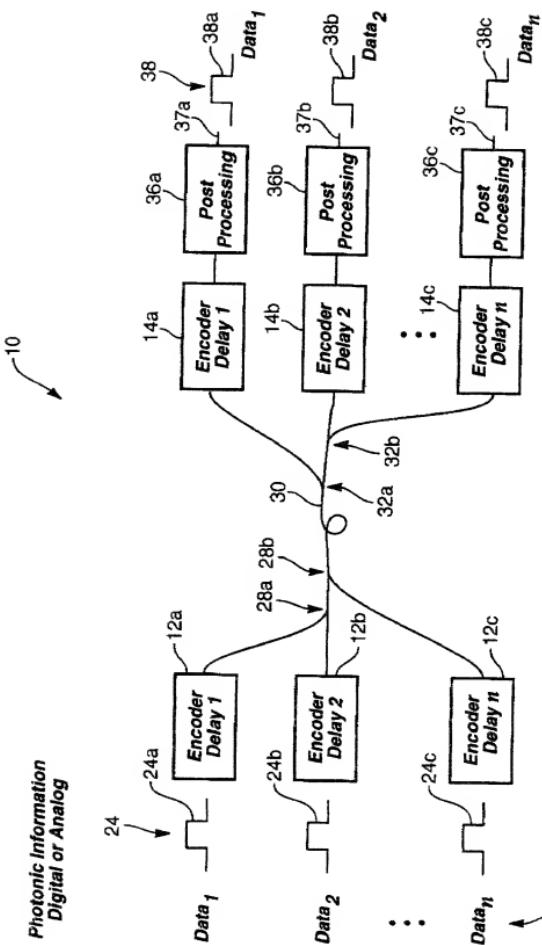


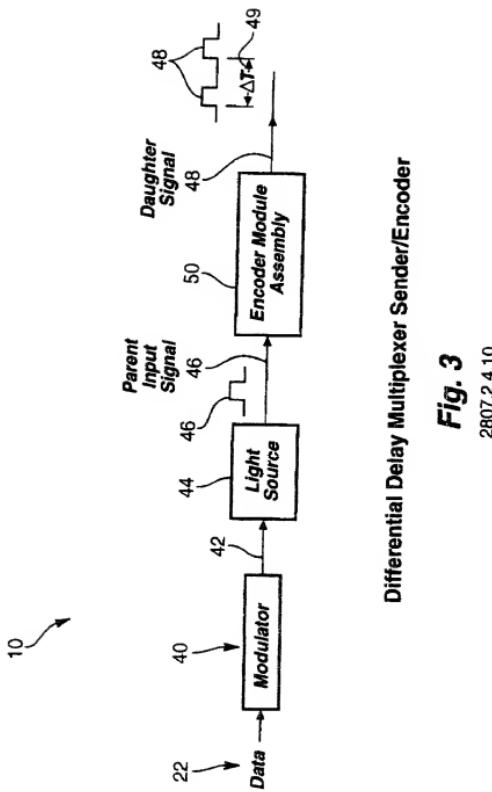
**FIG. 1**

2807.2.4.10



**Fig. 2**  
2807.2.4.10

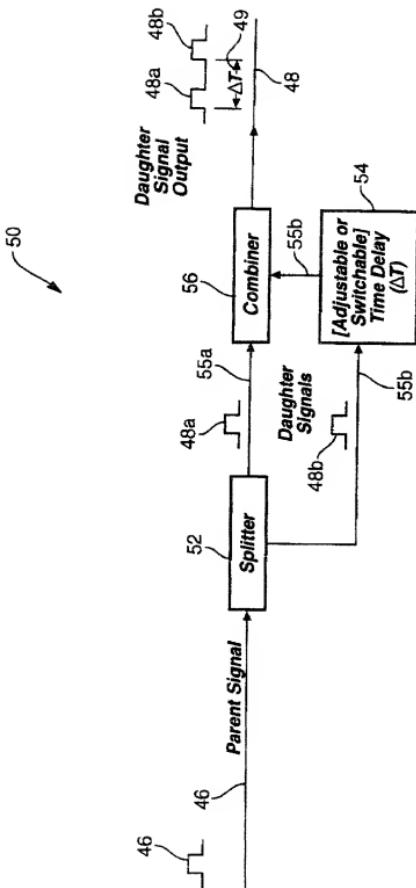
3/50



Differential Delay Multiplexer Sender/Encoder

*Fig. 3*

2807.2.4.10



Differential Delay Multiplexer (DDM) Sender/Encoder

Fig. 4

2807.2.4.

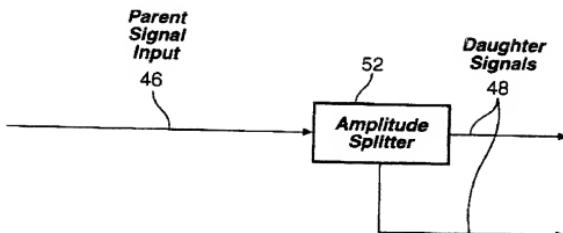
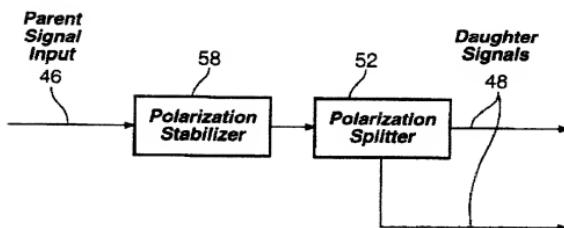


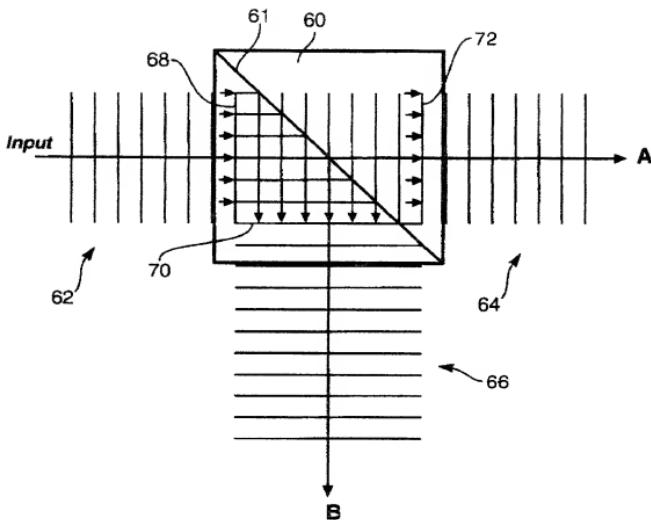
FIG. 5



Splitting Criteria

FIG. 6

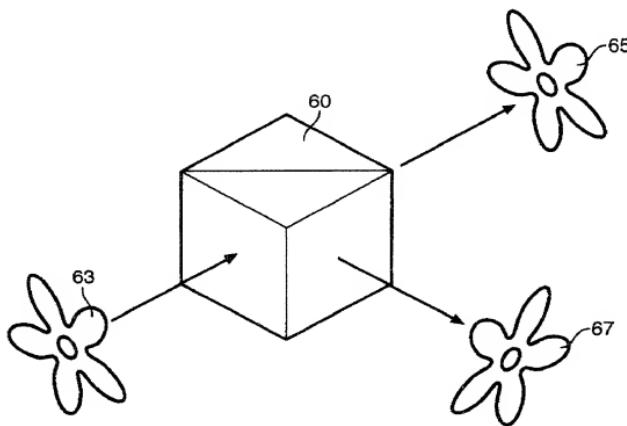
2807.2.4.



Amplitude or Polarization Splitter

**FIG. 7**

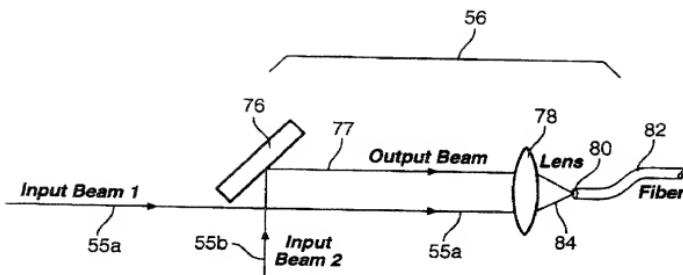
2807.2.4.



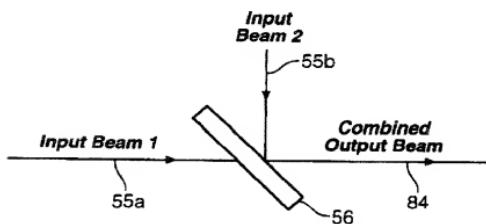
**Image Signals Which  
Maintain Spatial Information**

**FIG. 7A**

2807.2.4.



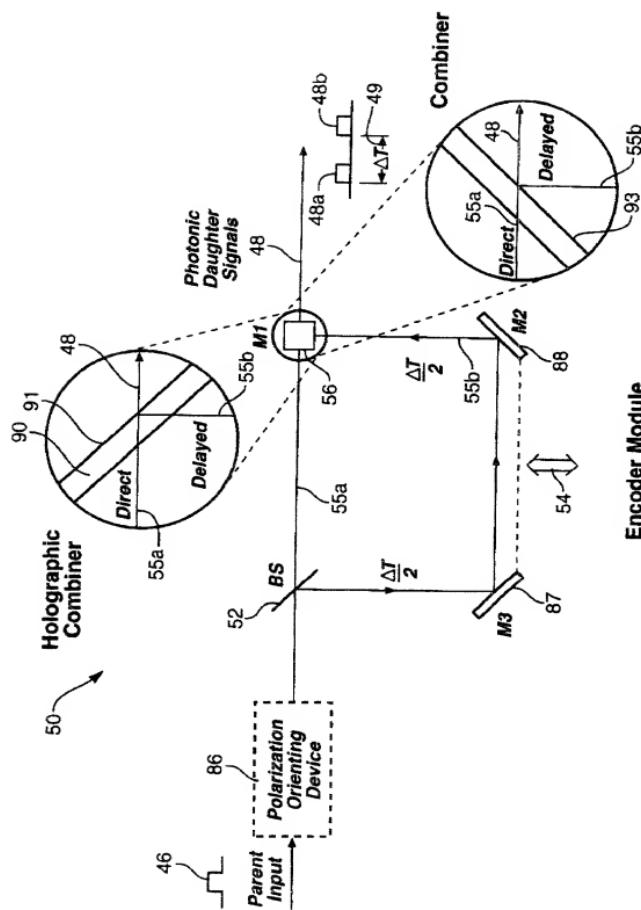
**Beam Combiner**  
**FIG. 8**



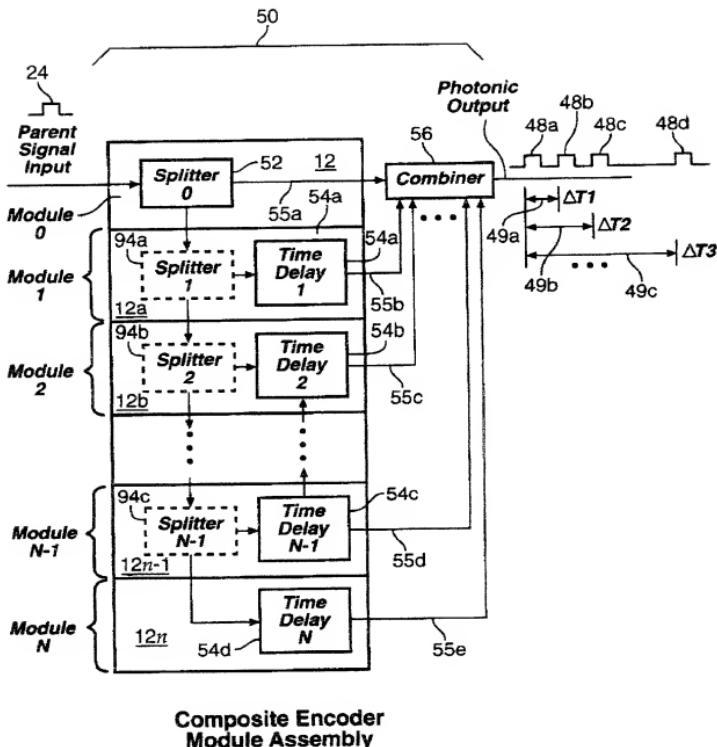
**Amplitude or Polarization Combiner**

**FIG. 9**

2807.2.4.



**Fig. 10**  
2807.2.4.

**FIG. 11**

2807.2.4.

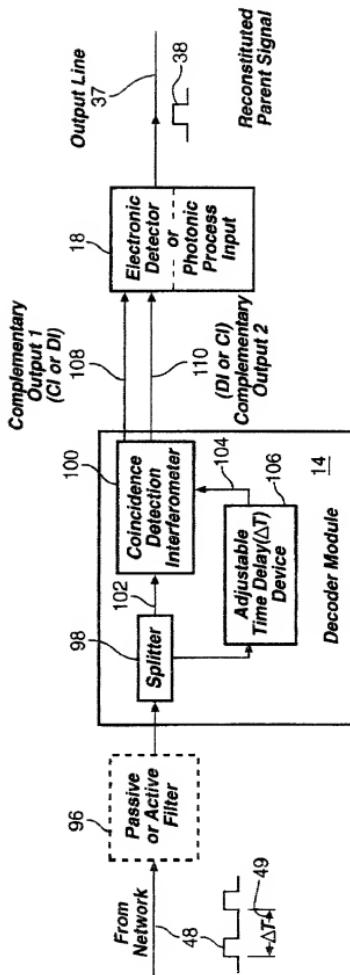
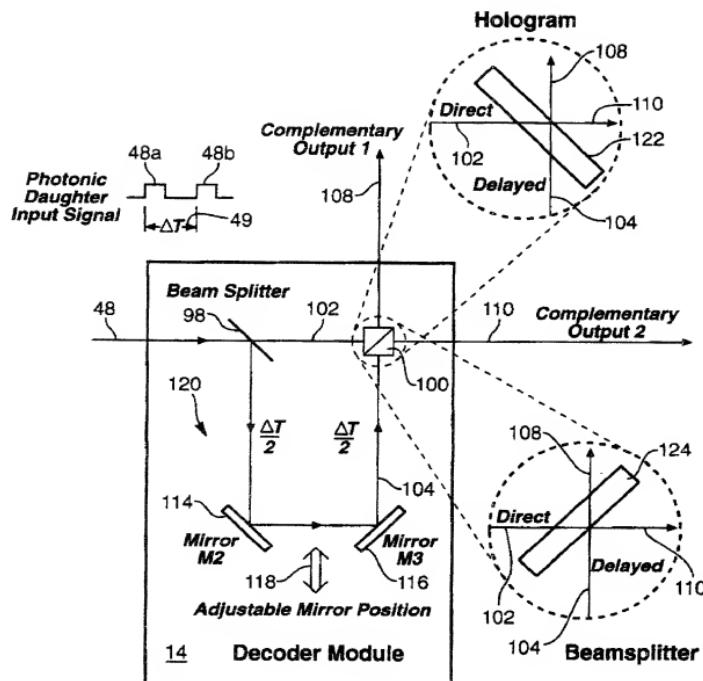


Fig. 12



**FIG. 13**

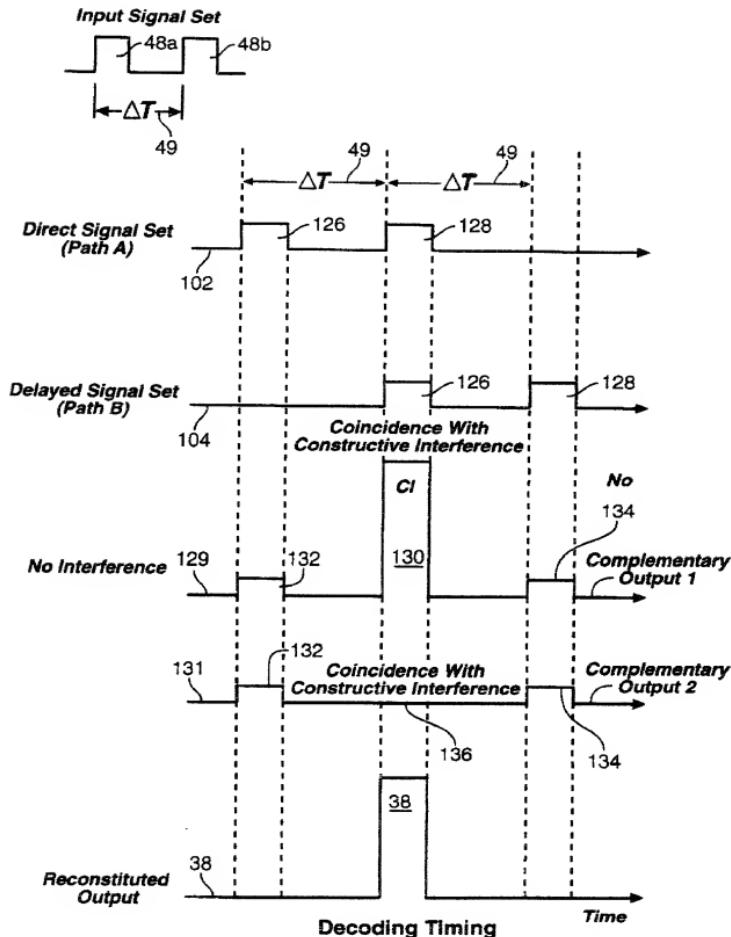


FIG. 14

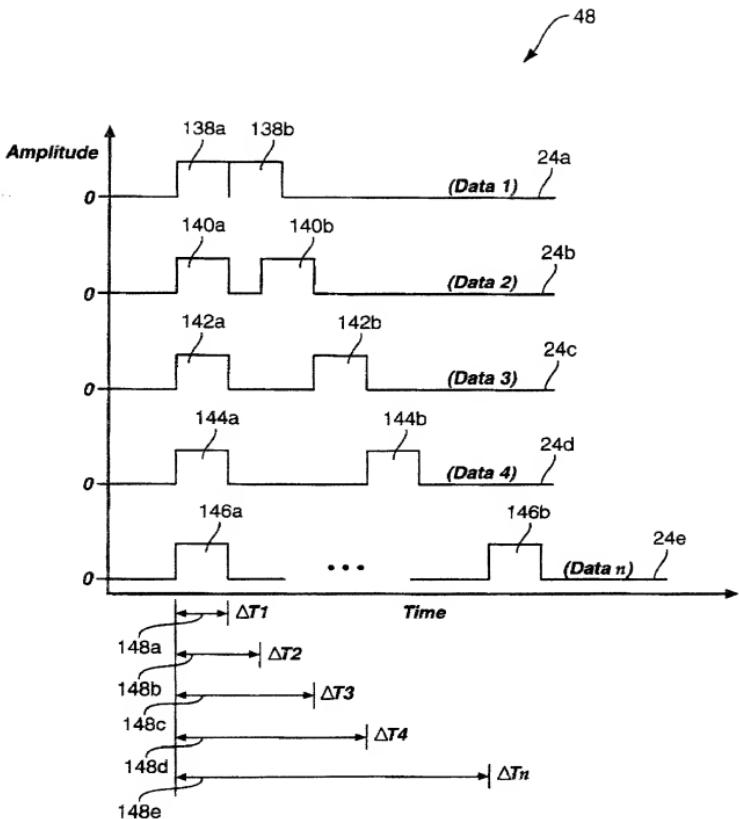


Fig. 15

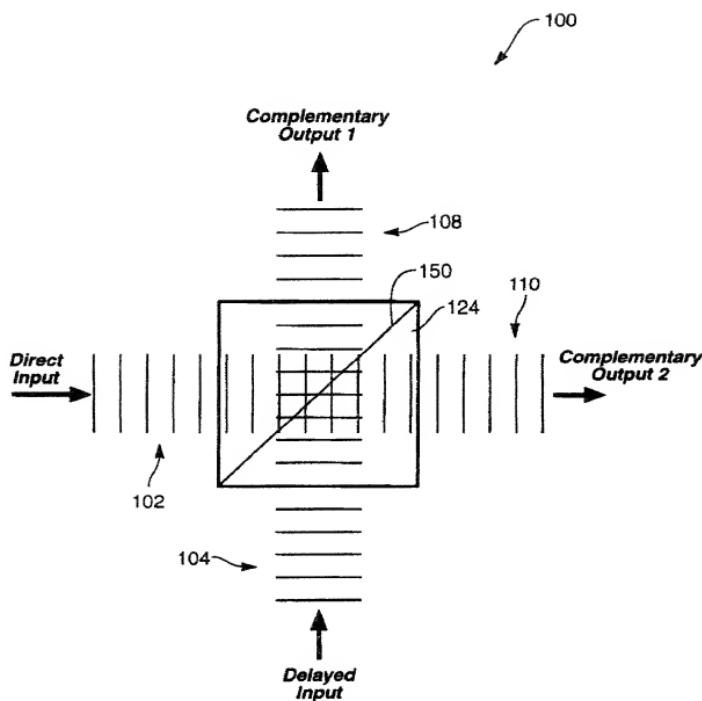


Fig. 16

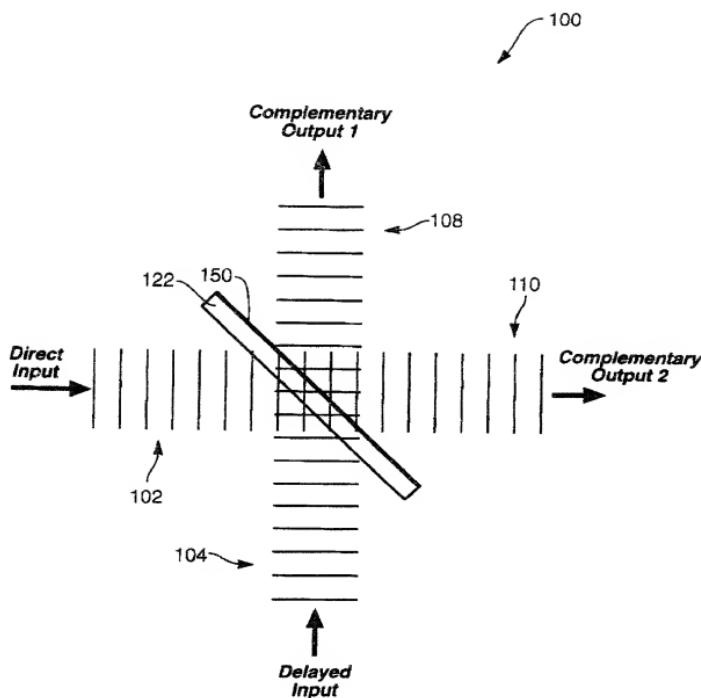


Fig. 17

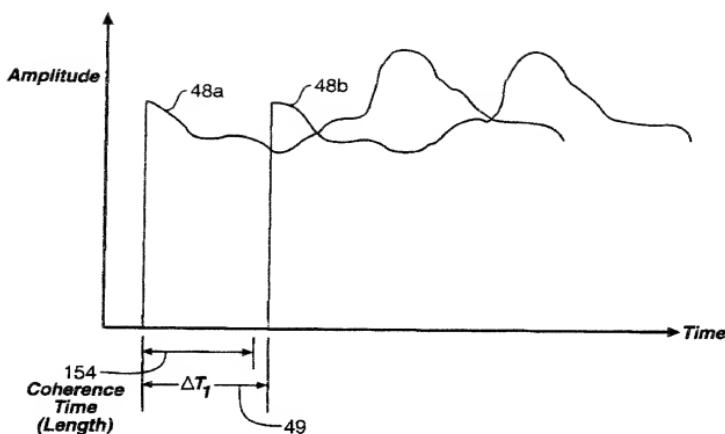


Fig. 18

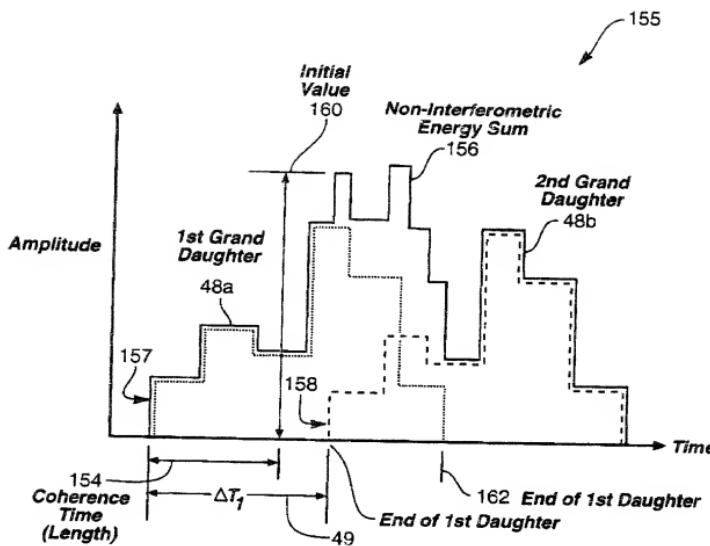


Fig. 19

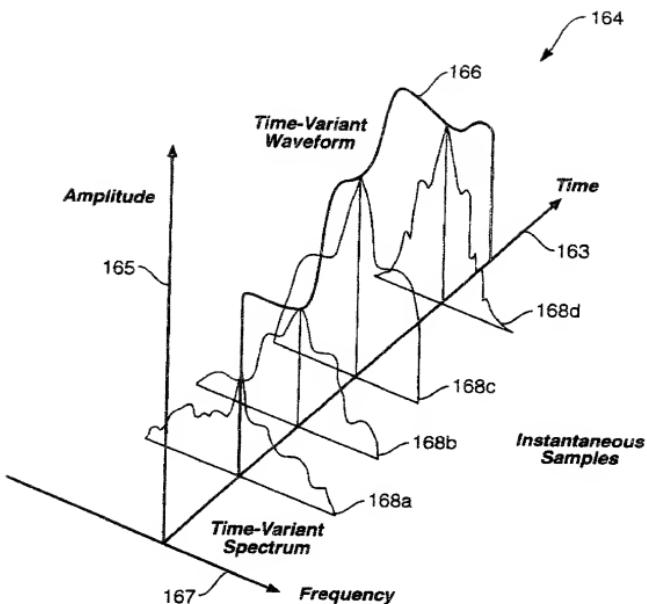


Fig. 20

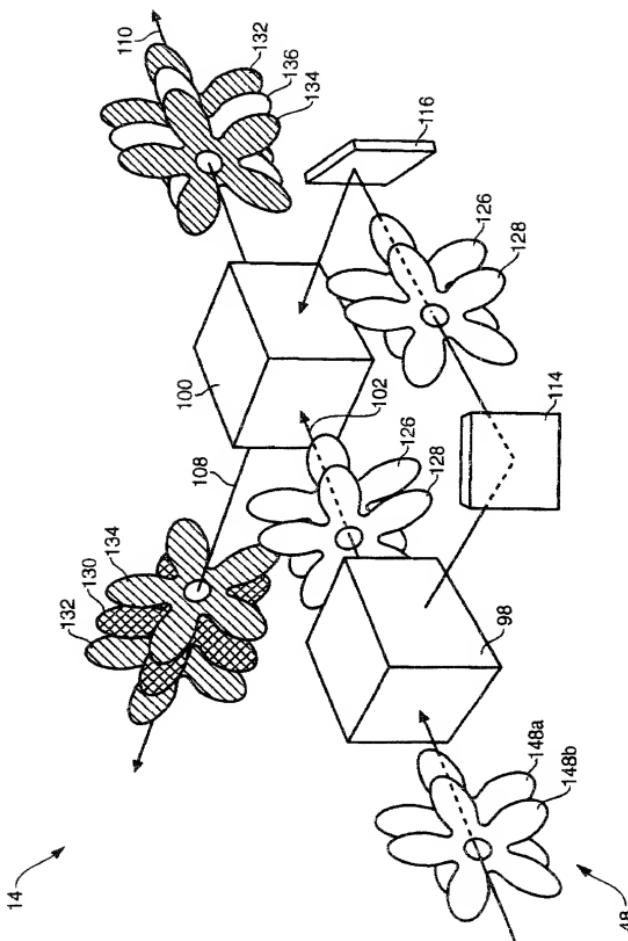
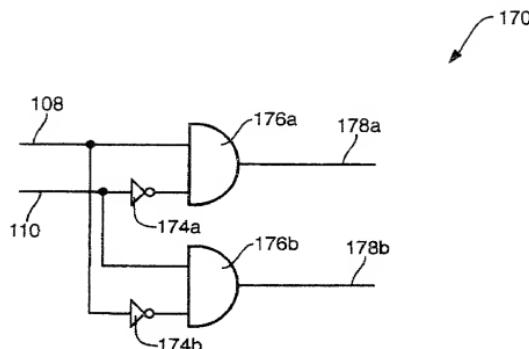
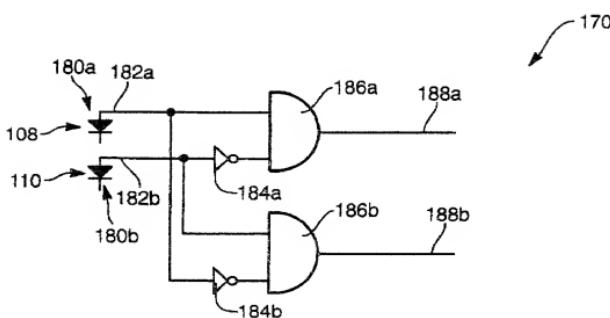


Fig. 21



Photonic Processor

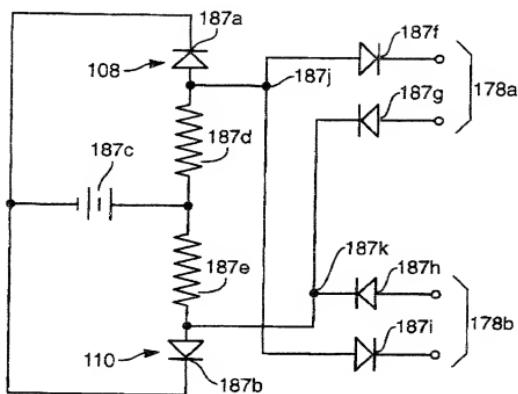
*Fig. 22*



Electronic Processor

*Fig. 23A*

170

00197532498 - 122700  
Electronic Processor*Fig. 23B*

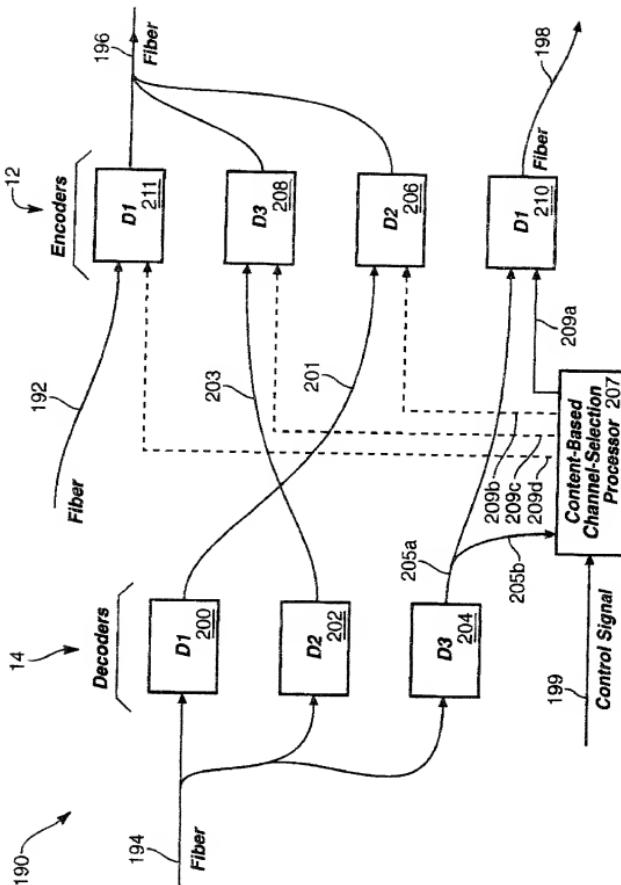
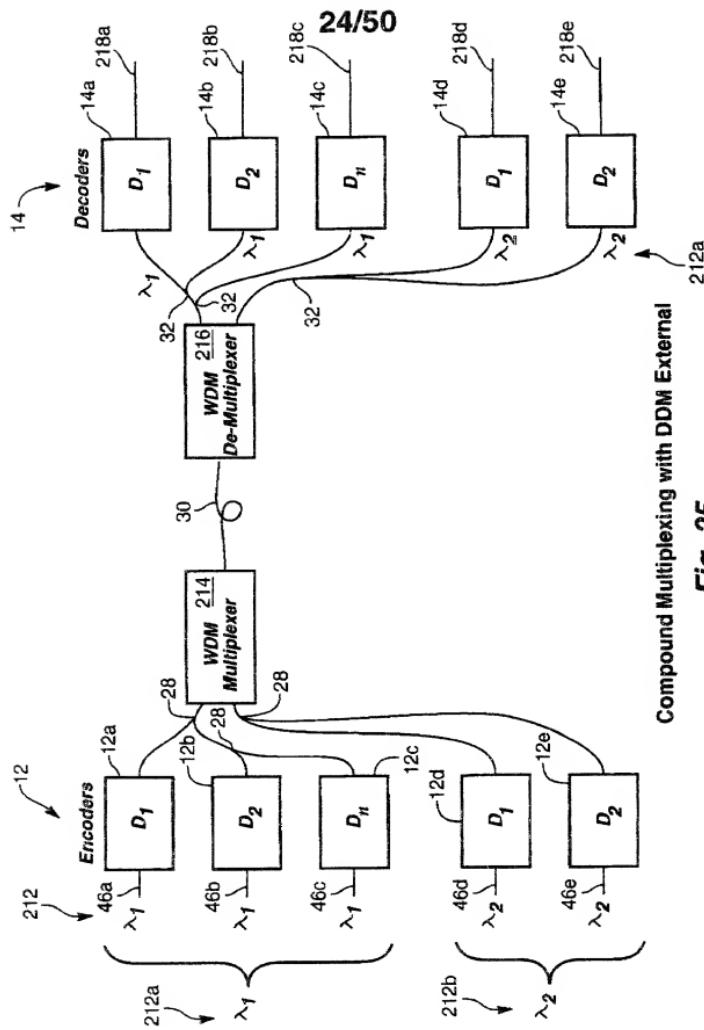
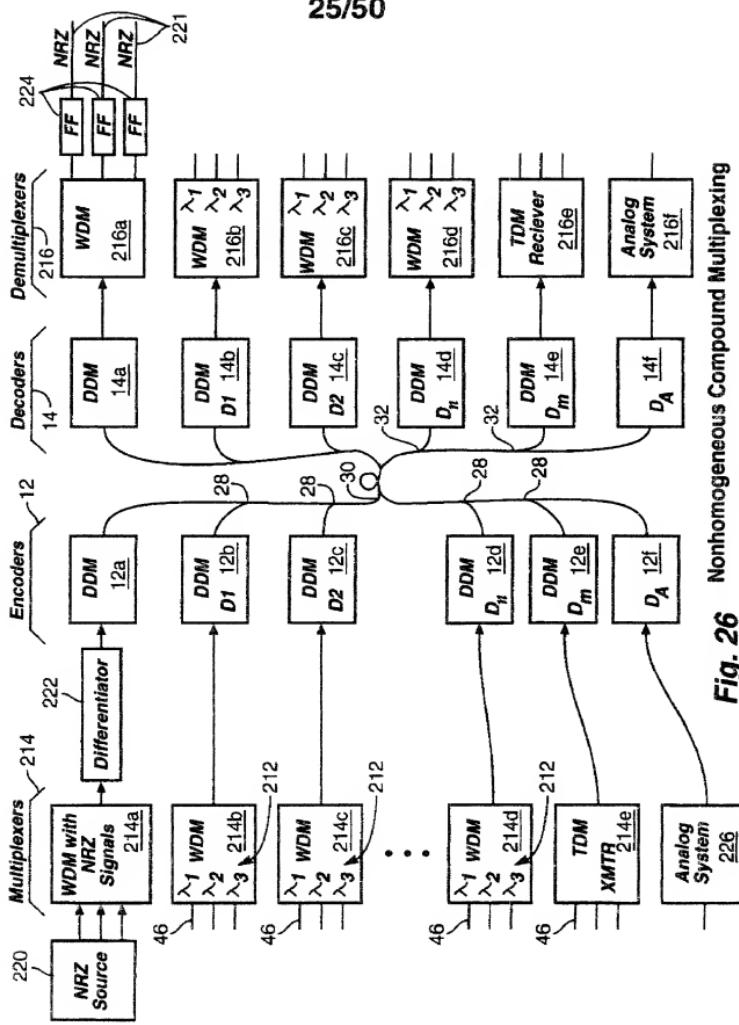


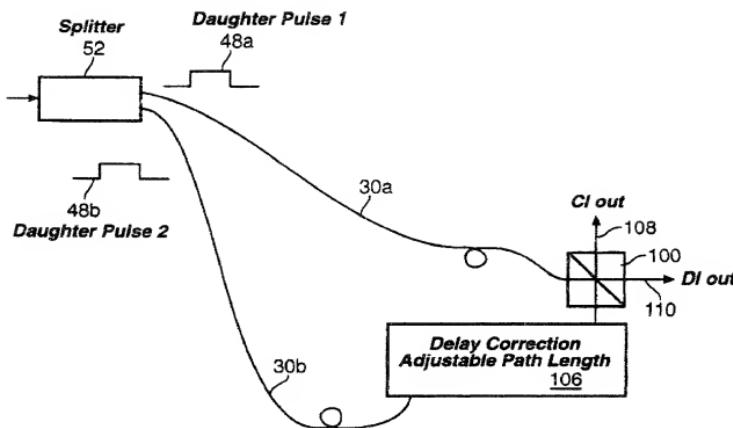
Fig. 24



## Compound Multiplexing with DDM External



**Fig. 26** Nonhomogeneous Compound Multiplexing



Multiple Delay Path

Integrated Delay and  
Delay Correction

FIG. 27

### Photonic NRZ Interface

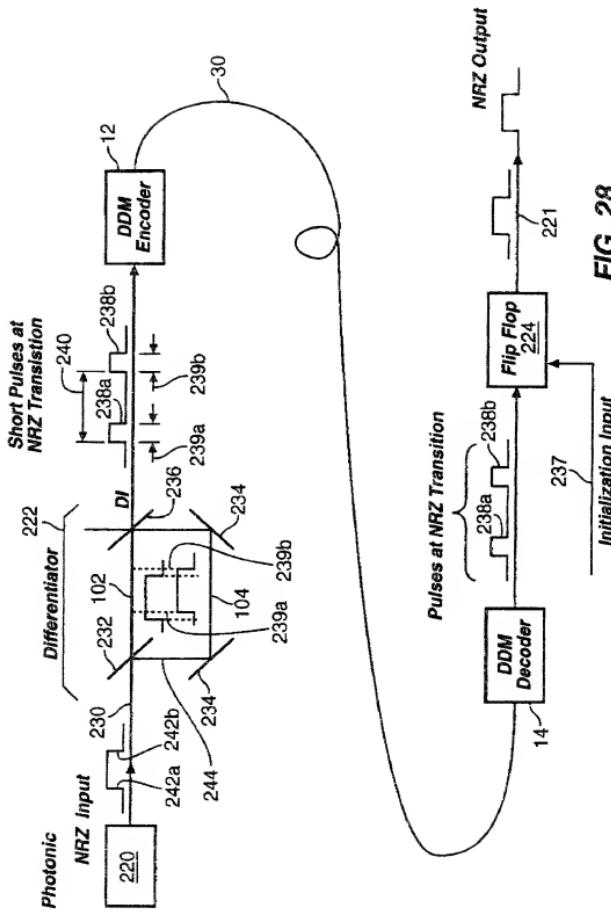


FIG. 28

00753498 422700

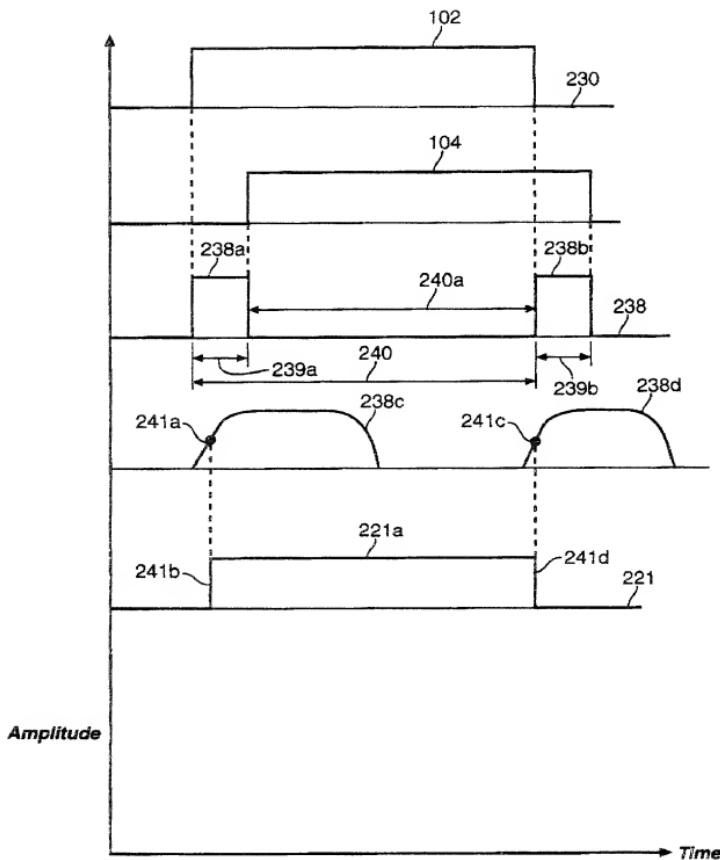
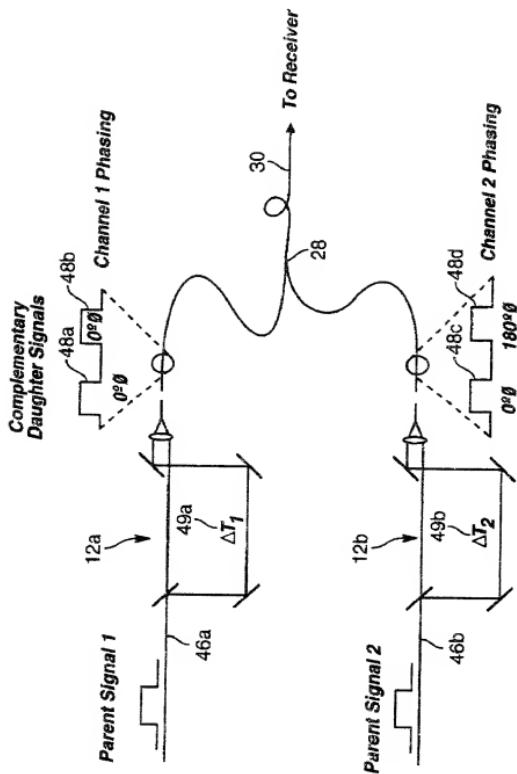


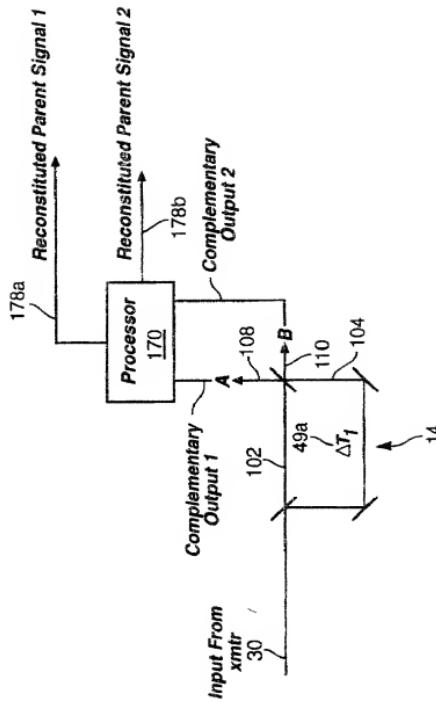
FIG. 29



Phase Sequenced Dual Channel Encoder

FIG. 30

**Phase Sequenced Dual Channel Decoder**



**FIG. 31**

## Phase Sequence Timing

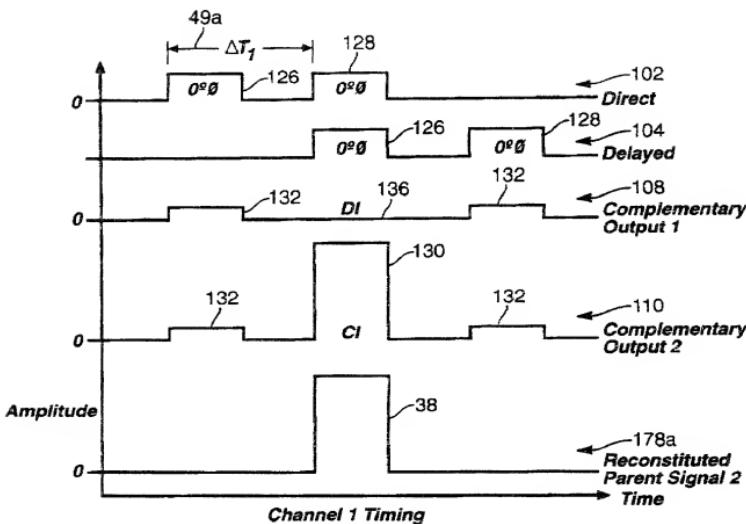
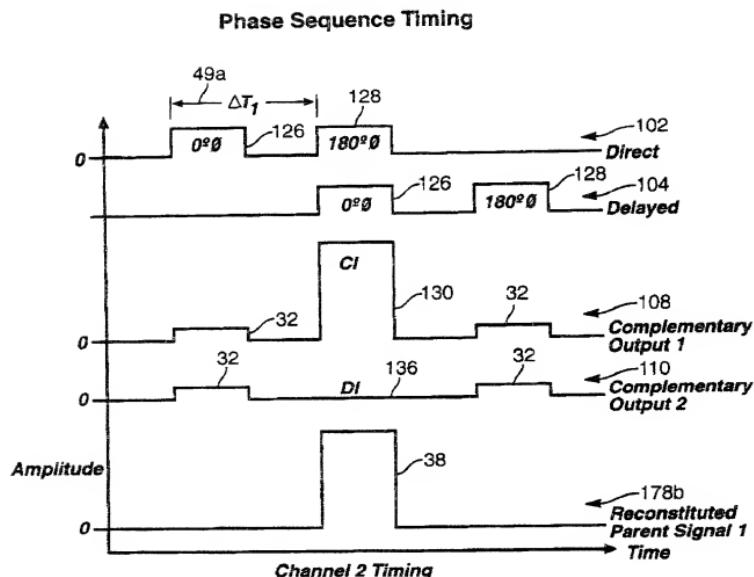


FIG. 32

**FIG. 33**

### Quadrature Encoding/Decoding Apparatus

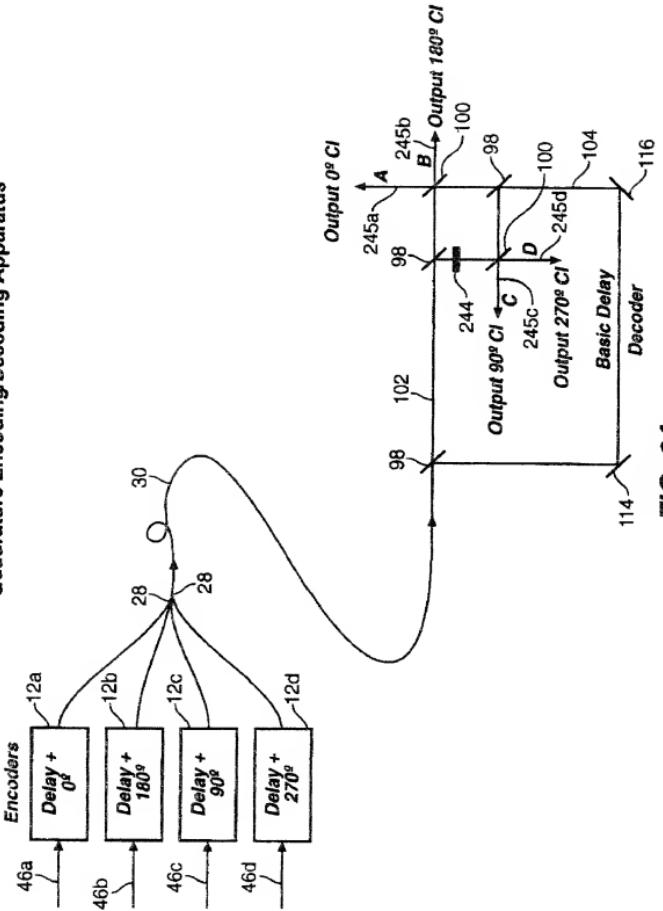


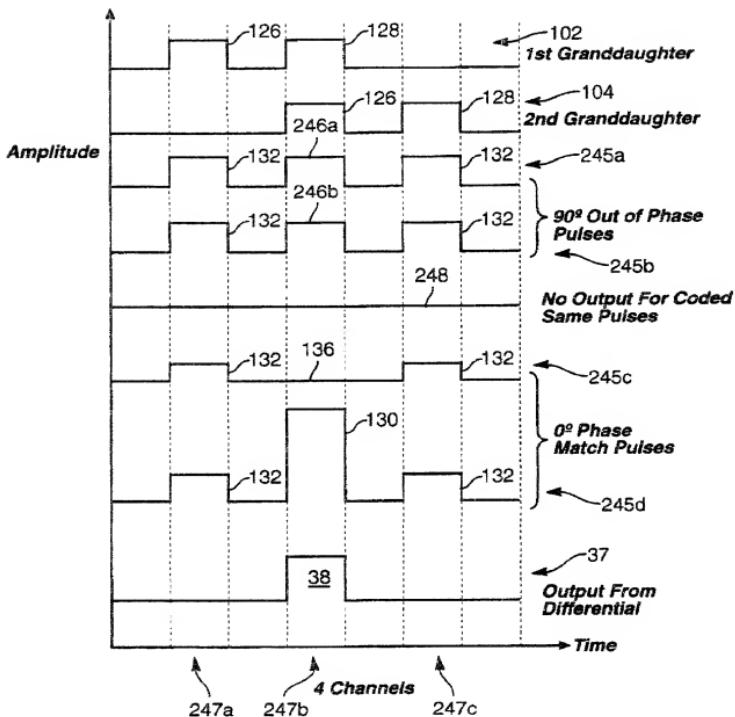
FIG. 34

<i>Phase of Direct Signal</i>	<i>Phase of Delayed Signal</i>	<i>Quadrature Outputs</i>			
		<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
46a → <i>Channel 1</i>	0	0	<i>CI</i>	<i>DI</i>	<i>C = D</i>
46b → <i>Channel 2</i>	0	180	<i>DI</i>	<i>CI</i>	<i>C = D</i>
46c → <i>Channel 3</i>	0	90	<i>A = B</i>	<i>CI</i>	<i>DI</i>
46d → <i>Channel 4</i>	0	270	<i>A = B</i>	<i>DI</i>	<i>CI</i>

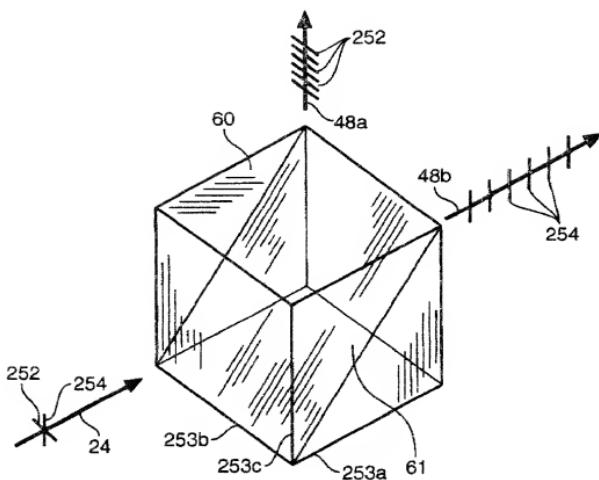
↑      ↑      ↑      ↑  
245a    245b    245c    245d

FIG. 35

## **Quadrature Wave Forms For One Channel**

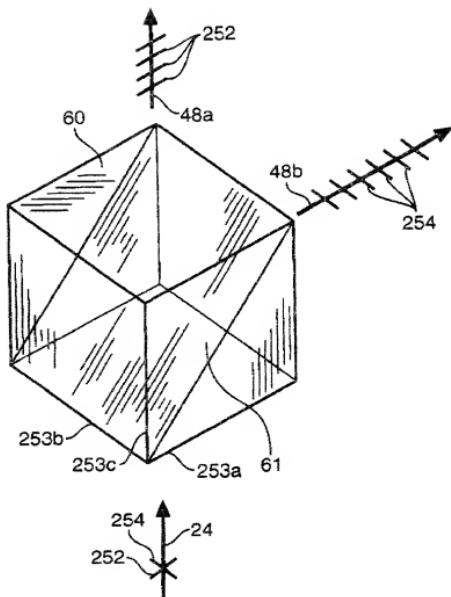


**FIG. 36**

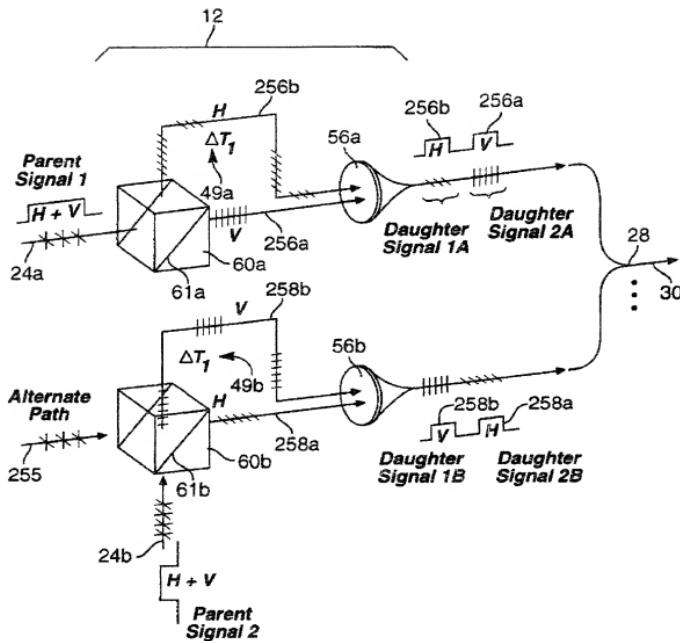


**FIG. 37A**

0072247-869353760

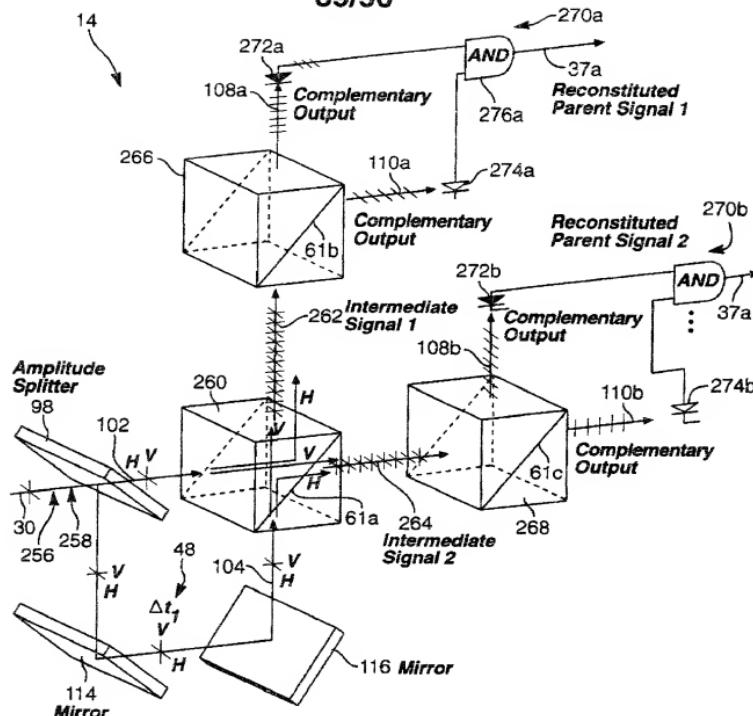


**FIG. 37B**



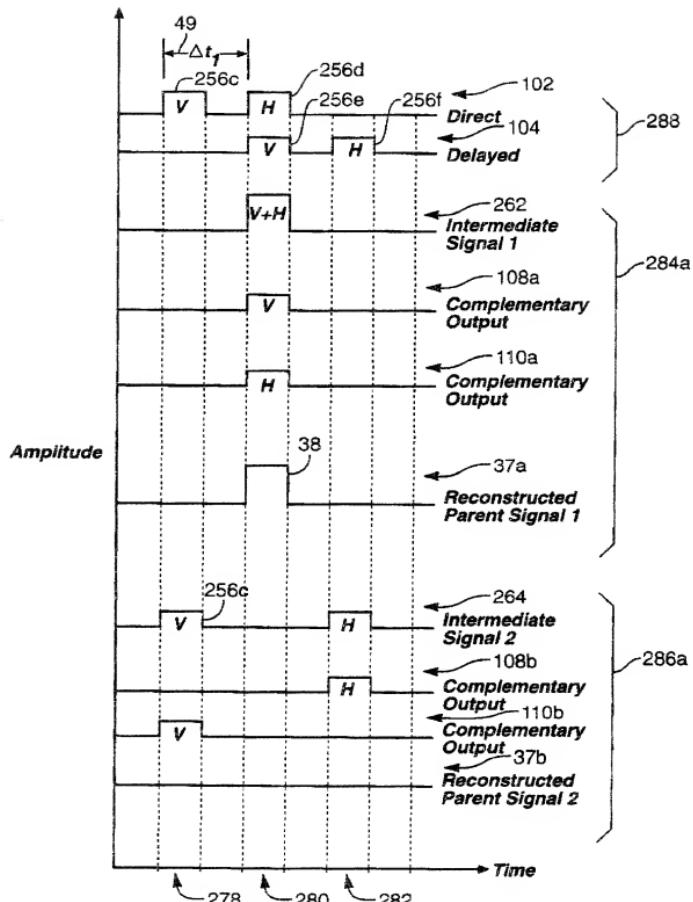
**Double Encoder With Polarizations Sequenced to Differentiate 2 Channels Having the Same Time Delay Between Daughter Signals**

FIG. 38



Double Decoder With Polarizations Sequenced  
to Differentiate 2 Channels Having the Same Time  
Delay Between Daughter Signals

FIG. 39



Polarization Sequenced Channel 1 Timing

**FIG. 40**

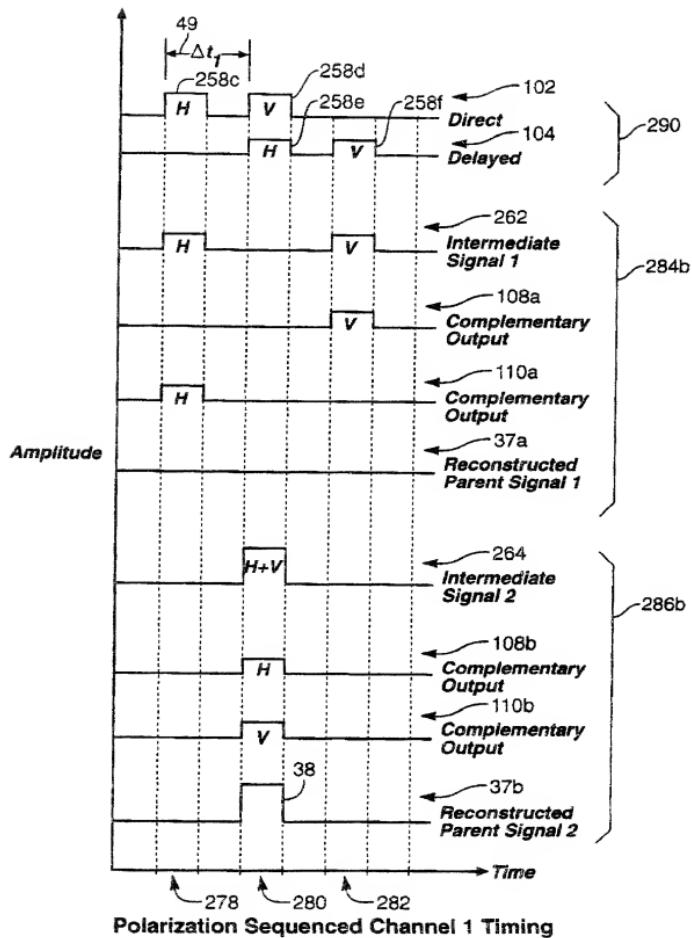


FIG. 41

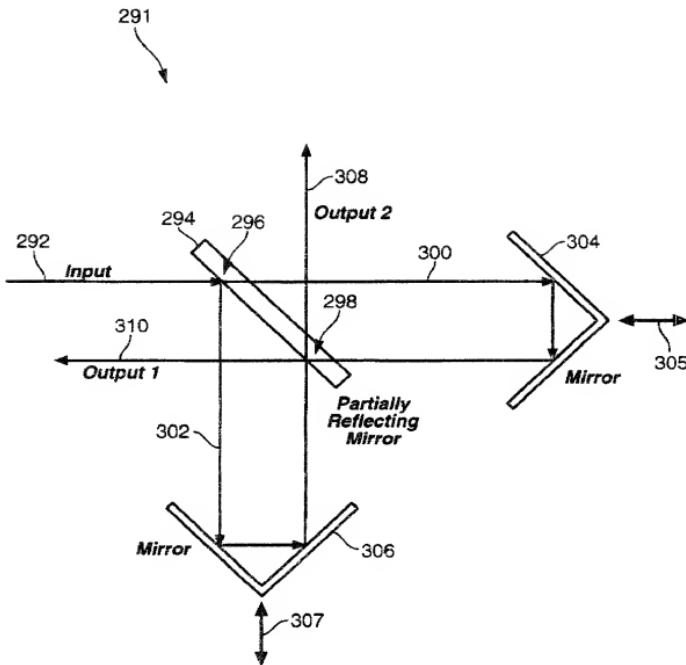


FIG. 42

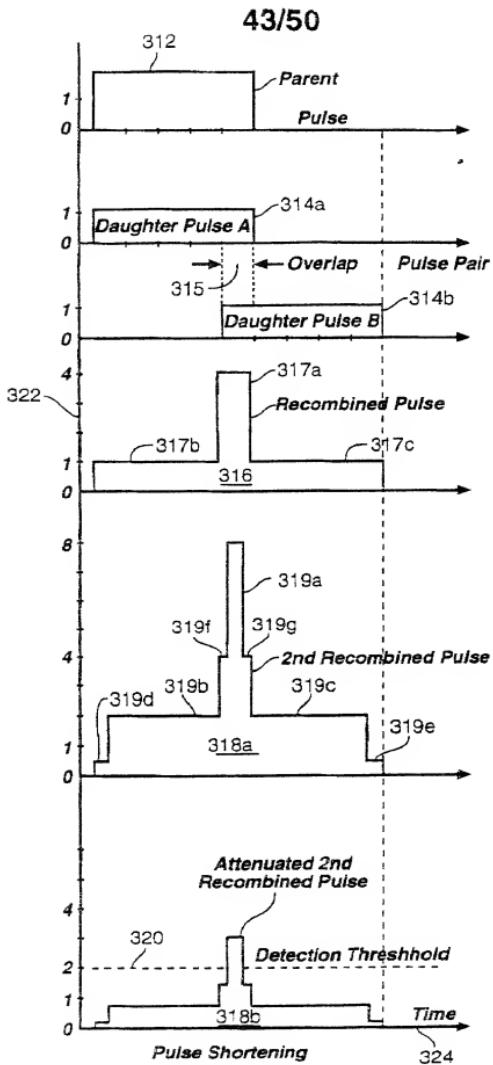


FIG. 43

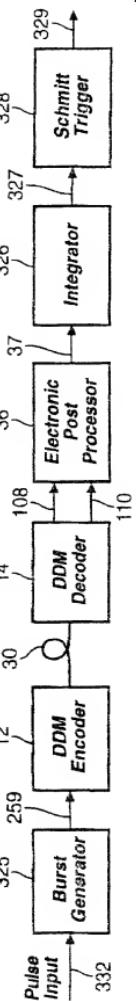


FIG. 44

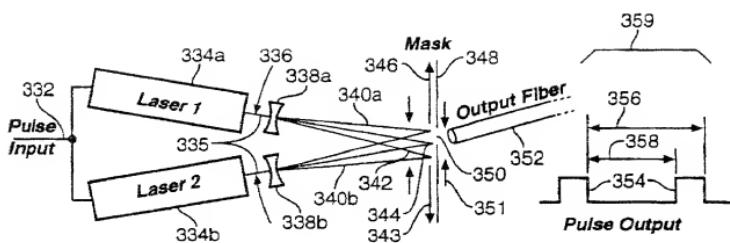


FIG. 45

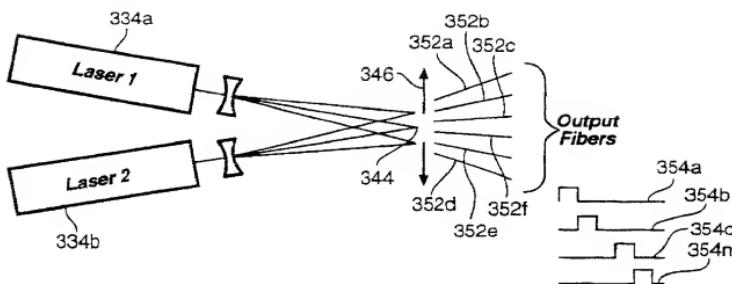


FIG. 46

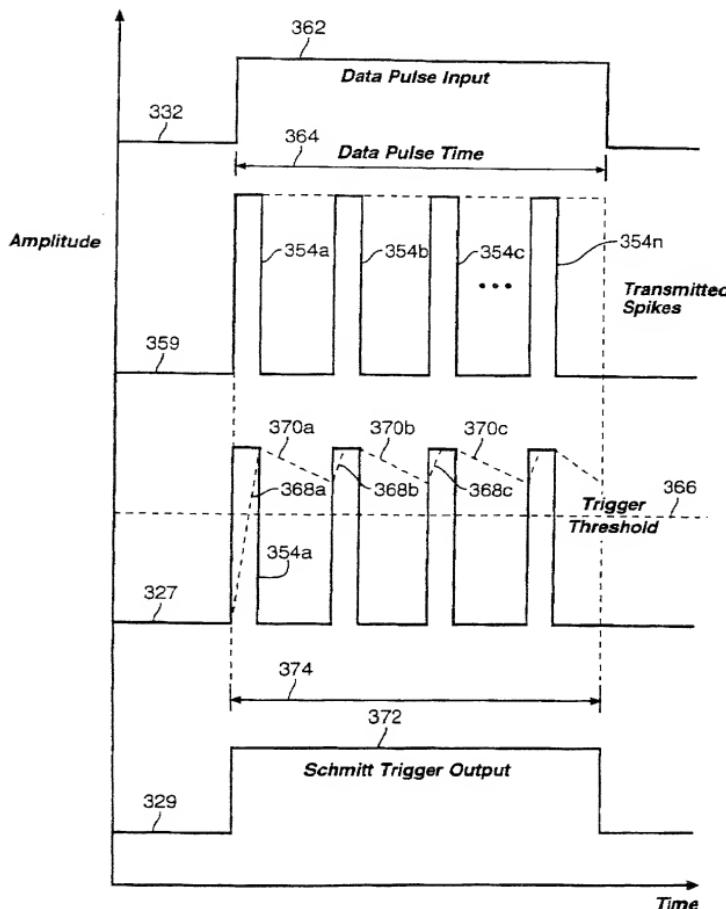


FIG. 47

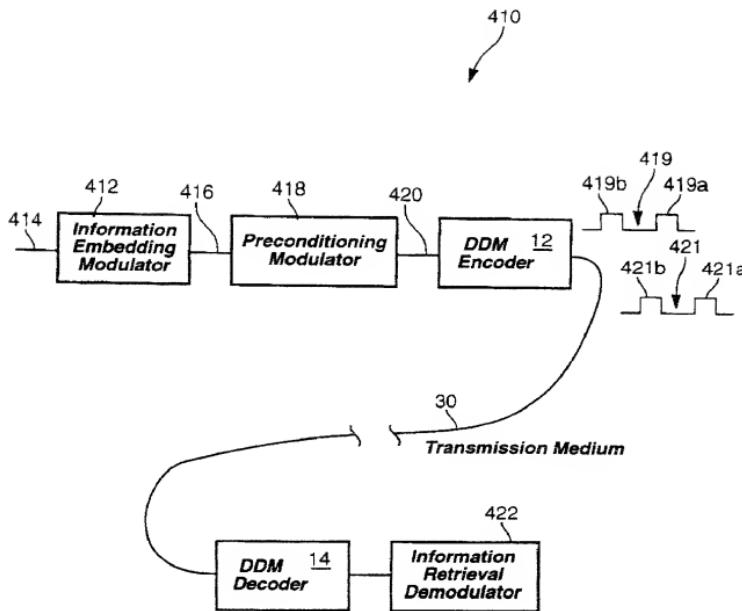


FIG. 48

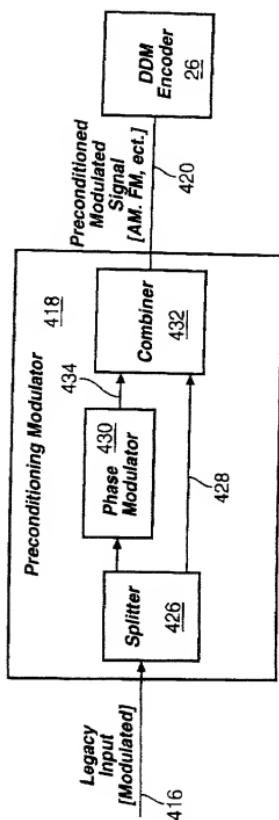
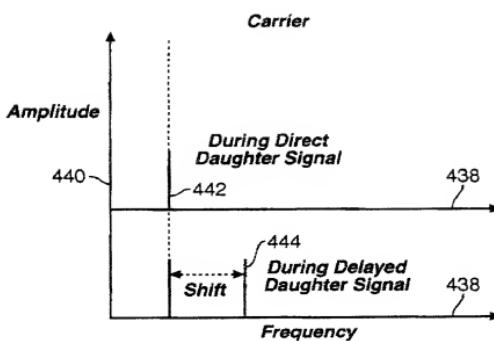


FIG. 49

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**FIG. 50**